

extremity. Branchiæ compound, in four or five pairs on the sides of the body, the anterior ones bifurcated or trifurcated into papillose, conical, pointed processes; and on the inner side of the stem of each are two or three transparent, almost colourless, plumose and branched appendages. Stem coloured like the body; papillæ white, with subterminal crimson-red ring. Foot broad, tapering, canaliculated, white, pellucid. Ova yellow.

This species combines some of the characters of a true *Eolis* with those of the new genus *Dendronotus*. The combination of plumose and papillose ramification of the branchiæ is very curious. The internal viscera correspond with those of the genus *Dendronotus*. I have named the species in honour of one who, with his associate Mr. Alder, has separated the arborescent forms of *Eolididæ* from the old genus *Tritonia*.

*Eolis Skinneri*, Kel.

About 4 lines long; white. Dorsal tentacles opaque white, with three granular rings. Oral tentacles long, with a subterminal reddish ring. Branchiæ in five sets, of three or four papillæ in each; opaque white, with a basal red ring.

Found by Major Skinner, Auditor-General, on sea-weed near the South Gate, Fort of Colombo.

XXVIII.—*Descriptions of new Genera and Species of Phytophagous Insects*. By J. S. BALY, Esq.

[Continued from p. 128.]

Fam. Galerucidæ.

Genus DIABROTICA, Erichs.

*Diabrotica dimidiata*.

*D. ovata*, convexa, flavo-fulva, nitida, elytris vix ante medium ad apicem abdomineque cæruleo-nigris; thorace subquadrato, vix pone medium transverse sulcato; unguibus piceis.—Long. 6 lin.

*Hab.* Banks of the Napo.

*Diabrotica regalis*.

*D. ovata*, convexa, fulva, nitida; capite, pectore, scutello elytrisque nigris, his minute punctatis, a basi apicem versus ampliatis, margine exteriore maculisque decem fulvis, harum 4 ante, 4 vix pone medium, et 2 ante apicem positis; antennarum articulis tribus basalibus tribusque ultimis fulvis, ultimi apice nigro, articulis in-

termediis, tibiis tarsisque piceis; thorace subquadrato, convexo, basi unifoveolato.—Long.  $4\frac{3}{4}$  lin.

*Hab.* Columbia?

*Diabrotica Clarkella.*

*D.* pallide rufo-brunnea, nitida; capite, thorace subquadrato elytrisque viridibus, his oblongo-ovatis, convexis, lateribus prope medium obsolete carinatis, tenuiter subcrebre punctatis, plaga magna transversa communi baseos rufo-brunnea, posticeque fascia communi arcuata flava, extrorsum abbreviata, instructis.—Long.  $3\frac{1}{2}$  lin.

*Hab.* Brazil.

*Diabrotica arcuata.*

*D.* elongata, pallide flava, nitida, tibiis, tarsis, pectore, scutello capiteque nigris; antennarum articulis penultimis duobus articulisque ultimi basi albidis; thorace latitudine paullo longiore, disco obsolete transverse bi-impreso; elytris oblongis, convexis, a basi ad apicem leniter ampliatis, crebre punctatis, macula oblonga humerali, basi connexa, linea suturali longe ante medium abbreviata, fasciaque communi arcuata, pone medium posita, cyaneis.—Long.  $4\frac{1}{2}$  lin.

*Hab.* Bogota.

*Diabrotica exclamationis.*

*D.* elongata, nigra, nitida; elytrorum utrumque limbo laterali, vitta mediali postice abbreviata, punctoque subapicali, coxis, trochantaribus femorumque basi, albidis; thoracis subquadrati lateribus antennarumque articulis secundo tertioque obscure piceis.—Long. 3 lin.

*Hab.* Brazil.

*Diabrotica vespertina.*

*D.* fulva, nitida, capite nigro, antennarum articulis quatuor ultimis albidis; thorace transverso, disco transverse excavato et obsolete tri-impreso; elytris ovatis, crebre punctatis, læte metallico-viridibus.

(*Mas.*) Elytris apicem versus prope suturam carina arcuata, medio unituberculata, et cum illa elytri alteri spatium subelevatum minus punctatum includente, instructis.—Long. 4–5 lin.

*Hab.* Bank of the Napo.

*Diabrotica Batesii.*

*D.* fulva, nitida, capite nigro, antennis piceis, harum articulis tribus ultimis albis, quatuor basalibus subtus fulvis; thorace transverso, disco transverse depresso, utrinque impreso, rufo-fulvo, maculis duabus piceis; elytris oblongis crebre punctatis, obscure-olivaceis, limbo exteriori fulvo.

(*Mas.*) Elytris apicem versus prope suturam spatio semiovato elevato, minus crebre punctato instructis.—Long.  $2\frac{3}{4}$ –3 lin.

*Hab.* Ega, Upper Amazons. Collected by Mr. Bates.

*Diabrotica Erichsoni.*

*D. fulva*, nitida, capite (antennarum articulis quatuor ultimis prætermis) nigro; elytris oblongis, crebre punctatis, subrugosis, utroque vittis tribus obsolete elevato, plumbeis, margine lævi, fulvo; thorace transverso, disco fortiter transverse bi-impresso, basi univoelato.

(*Mas.*) Elytris apicem versus prope suturam carina oblonga nitida instructis, vittis obsolete, antennarum articulis basalibus subtus fulvis, ultimi apice nigro.—Long. maris 5 lin., fœm. 4 lin.

*Hab.* Banks of the Napo.

*Diabrotica triplagiata.*

*D. supra nigra*, nitida, antennarum articulis tribus ultimis flavo-albidis, ultimi apice nigro, articulis ante apicem album nigropiceis, quinque basalibus subtus fulvis; thorace transverso-quadrato, disco transverse excavato, utrinque impresso, lateribus sinuatis, flavo marginatis; scutello trigonato, apice subacuto; elytris oblongis, tenuiter subcrebre punctatis, obsolete carinatis, flavis, plaga magna communi subquadrata, a basi ad medium extensa, et utriusque macula postica obscure metallico-olivaceis; subtus flava, tibiis extrorsum femorumque dorso piceo-lineatis.

(*Mas.*) Elytris apicem versus prope suturam, carina brevi elevata instructis.—Long.  $4-4\frac{1}{2}$  lin.

*Hab.* Banks of the Napo.

This species probably varies in having the posterior patches on the elytra confluent at the suture.

*Diabrotica fraterna.*

*D. supra nigra*, nitida, thoracis lateribus antennisque flavis, his (articulis quatuor ultimis exceptis) dorso nigro-signatis; thorace transverso, disco transverse fortiter sulcato, ante basin breviter transverse canaliculato, lateribus ante medium ampliatis; scutello elongato-trigonato, apice obtuse truncato; elytris oblongis, tenuiter crebre punctatis, obscure metallico-olivaceis, limbo exteriore fasciaque prope medium flavis; subtus fusca, pedibus obscure fulvis, femoribus dorso, tibiisque extrorsum, nigris.—Long.  $4\frac{1}{2}$  lin.

*Hab.* Banks of the Napo.

*Diabrotica Adonis.*

*D. nigra*, nitida, antennarum articulis ultimis tribus, thorace transverso pedibusque flavo-albis; his tarsis, tibiis quatuor anticis fere totis posticisque apice nigris; elytris oblongis, tenuiter crebre

punctatis, cyaneis, limbo exteriore fasciaque lata centrali flavo-albidis; thorace fortiter transverse arcuatim sulcato, sulco obsolete bi-impresso.

(*Mas.*) Elytris apicem versus prope suturam tuberculo oblongo instructis.—Long. 4 lin.

*Hab.* Venezuela.

*Diabrotica ornata.*

*D.* flavo-fulva, nitida, capite nigro, unguibus antennisque piceis; thorace rufo-fulvo, transverso, disco transverse depresso et utrinque fortiter impresso, basi unifoventato; elytris oblongis, crebre punctatis, metallico-viridibus, limbo exteriore fasciaque prope medium flavis; antennis albidis, articulis basalibus quatuor subtus, ultimisque quatuor totis, obscure flavis.

(*Mas.*) Elytris apicem versus prope suturam carina arcuata instructis.—Long. maris 5, fœm. 4 lin.

*Hab.* Peru.

Genus *ÆDIONYCHIS*, Latr.

*Ædionychis Batesii.*

*Æ.* late ovata, convexa, obscure fusco-fulva, nitida; antennis (basi picea excepta) scutelloque nigris, unguibus posticis, vertice thoraceque rufo-fulvis, hoc ante basin leniter transverse impresso, basi ipsa utrinque nigro marginata, lateribus late reflexis, fulvis; elytris tenuiter punctatis, flavo-albis, maculis 13, seriebus transversis quatuor, 4-3-4-2 dispositis, nigro-cæruleis; tarsis, tibiis ad apicem femorumque dorso, pallide piceis.—Long.  $4\frac{2}{3}$  lin.

*Hab.* Ega, Upper Amazons.

*Ædionychis bilimbata.*

*Æ.* late ovata, fulva, nitida, antennis (basi excepta), vertice scutelloque nigris; elytris crebre punctatis, rufo-testaceis, margine exteriore flavo, basi infra humeros, vittaque submarginali, postice attenuata, cyaneis.—Long.  $3\frac{1}{2}$ -5 lin.

*Hab.* Brazil.

*Ædionychis bella.*

*Æ.* ovata, nitido-nigra, facie inferiore utrinque flavo-maculata, abdominis margine thoraceque rufo-fulvis; elytris tenuiter punctatis, margine exteriore, apice dilatato, lineaque transversa submaculariformi prope medium, sutura abbreviata, flavis.—Long. 4 lin.

*Hab.* Peru.

*Ædionychis tetraspilota.*

*Æ.* ovata, nigra, nitida, thoracis lateribus albidis; elytris metallico-purpureis, tenuissime punctatis, utroque maculis duabus magnis, una prope medium, altera apice, positis, flavo-albis.—Long.  $3\frac{1}{2}$  lin.

*Hab.* Brazil.

*Edionychis bifasciata*.

*Æ*. elongato-ovata, fulva, nitida, antennis (basi excepta) femorumque posticorum apice nigris; supra flava, elytrorum fasciis latis duabus, extrorsum abbreviatis, una basi, altera pone medium, positis, nitido-metallico-cæruleis.—Long.  $3\frac{3}{4}$  lin.

*Hab.* Amazons.

*Edionychis ornata*.

*Æ*. elongato-ovata, fusco-fulva, pedibus antennisque piceis, supra albidis, vertice nigro; elytris indistincte punctatis, nitidissimo-cupreis, margine exteriori fasciisque duabus, harum una vix ante medium, altera prope apicem, sutura abbreviata, albidis.—Long.  $3\frac{1}{2}$  lin.

Var. A. Antennis pedibusque anterioribus quatuor, nigris.

*Hab.* Guatemala, Amazons, Cayenne. Var., Venezuela.

*Edionychis Salléi*.

*Æ*. subovata, pallide flava, nitida, capite, antennarum apice scutelloque nigris; elytris oblongis, crebre tenuiter punctatis, plaga magna discoidali, a basi fere ad apicem extensa, margineque laterali, postice abbreviato, cæruleo-nigris; antennarum articulis basalibus quatuor supra, tarsisque fuscis.—Long. 3 lin.

*Hab.* Mexico.

*Edionychis semifasciata*.

*Æ*. ovata, flavo-albida, nitida, corpore subtus antennisque nigris, capite rufo-fusco, nigro-maculato; margine laterali indistincte, basi extrema fasciisque duabus, utrinque abbreviatis, harum prima pone medium, secunda flexuosa, prope apicem posita, pallide rufo-brunneis; tibiis tarsisque posticis nigro-piceis.—Long. 4 lin.

*Hab.* Brazil.

*Edionychis quadrivittata*.

*Æ*. ovata, fulva, antennis extrorsum nigris; elytris ovatis, tenuiter crebre punctatis, margine complanato modice dilatato, utroque vittis duabus, a basi fere ad apicem extensis, apice confluentibus, rufo-brunneis.—Long. 5 lin.

*Hab.* Brazil.

*Edionychis trivittata*.

*Æ*. oblonga, convexa, pallide picea, nitida, supra (capite excepto) fulva, thorace elytrisque crebre punctatis, his sutura et utroque vitta discoidali a basi fere ad apicem extensa, rufo-fuscis.—Long.  $4\frac{1}{2}$  lin.

*Hab.* Brazil.

*Edionychis submarginata*.

*Æ*. ovata, nigro-picea, nitida, facie inferiore, thorace elytrisque punctatis, albidis, illo maculis duabus disco transverse positis,

his sutura vittaque submarginali, nigris; antennis nigris, articulis basalibus obscure piceis.—Long.  $3\frac{2}{3}$  lin.

*Hab.* Brazil.

*Edionychis virginella.*

*Æ.* oblongo-ovata, nitido-fusco-fulva, tibiis tarsisque posticis, pedibus quatuor anticis antennisque rufo-fuscis, thorace elytrisque albidis, his subrectis, lævibus, obsolete punctulatis.—Long.  $3\frac{1}{2}$  lin.

*Hab.* San Paulo, Brazil.

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XXIX.—On Digestive Power in the Actiniæ.

By E. W. H. HOLDSWORTH, F.L.S. &c.

To the Editors of the *Annals of Natural History.*

GENTLEMEN,

Mr. G. H. Lewes having recently published, in 'Seaside Studies,' his views of the digestive powers of the *Actiniæ*, criticism becomes allowable; I therefore propose to offer a few remarks on the subject, and to relate my observations made during a long course of study of these animals. If I cannot always agree with Mr. Lewes, still I have no wish to depreciate the value of his researches; and my sole object in stating what I have observed is to aid in the settlement of the point in dispute.

In 'Seaside Studies,' page 207, will be found the brief query—"Do the Actiniæ digest at all?" Mr. Lewes then proceeds to give his definition of digestion, and concludes by saying,—“Thus we see that solubility and transformation are the two digestive effects, to produce which two agencies are needful—the mechanical and chemical.” The first is the one adopted by the author as the *sole* means of preparing the food for assimilation in the *Actiniæ*.

In order to test the accuracy of this opinion, it will be desirable to notice what takes place when these polypes are fed. Any one who has healthy specimens in an aquarium can easily try the experiment, and will observe something like the following process:—

A piece of meat, of suitable size, after being conveyed to the mouth of the polype, is taken into the membranous tube, generally considered as the stomach, where it remains for a few *minutes* only, and sometimes barely stops there; it then passes into the general cavity of the body, and finally rests at its lowest part. The animal now fills itself with water until every part is distended to the utmost, and in this state it continues for several hours, not unfrequently for two days, the average time perhaps